

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant	Fang Lei
Application No. 10/764,908	Filing Date: January 26, 2004
Title of Application:	Image Transmission System From Three Rod Lenses For Rigid Endoscopes
Confirmation No. 3365	Art Unit: 2872
Examiner	Thong Q. Nguyen

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Substitute Appeal Brief Under 37 CFR §41.37**

Dear Sir:

In Response to the Communication of June 4, 2007, Applicant submits this  
Substitute Appeal Brief.

A Notice of Appeal from the final rejection of Claims 1, 3, 5-9, 11-14 and 16-17, all pending claims, of U.S. Patent Application No. 10/764,908 was previously filed. Applicant accordingly files its appeal brief in connection with its appeal. A Claims Appendix is submitted herewith, as are Appendices related to evidence previously submitted and proceedings related to the case.

**(i) Real Party In Interest**

The real party in interest is Karl Storz GmbH & Co. KG, assignee of the patent application.

**(ii) Related Appeals and Interferences**

There are no related Appeals or Interferences.

**(iii) Status Of Claims**

Claims 1, 3, 5-9, 11-14 and 16-17 stand rejected and are the subject of the instant Appeal. A copy of each of these claims is attached hereto in the Claims Appendix. Claims 2, 4, 15, and 18-22 have been withdrawn. Claim 10 has been cancelled.

**(iv) Status Of Amendments**

There are no pending or unentered Amendments.

**(v) Summary Of Claimed Subject Matter**

The present invention, as claimed in independent Claim 1, the only independent claim, relates to an image transmission system for endoscopes.

Referring to Figure 1 and Page 5, line 25 – Page 6, line 11 of the specification, the system includes a center rod lens (10') and two outer rod lenses (20, 30) which are symmetric about the center plane (100) perpendicular to the optical axis and are positioned vertex-to-vertex adjacent to each other. The center rod lens (10') includes a main element (11') and two biconvex lens elements (12', 13') cemented to both sides to form the biconvex connecting rod lens (10'). The outer rod lenses (20, 30) are biconvex, and the center rod lens (10') is essentially of the same length as, or longer than, the length of each of the outer rod lenses (20, 30). All lens elements comprise optically homogeneous material, and all optically active lens surfaces (1, 2, 3, 4, 5, 6, 7, 8) are spherical.

**(vi) Grounds Of Rejection To Be Reviewed On Appeal**

Claims 1, 3, 5-9, 11-14 and 16-17 stand rejected as unpatentable over Takahashi, JP 61-20015 (hereinafter, "Takahashi '015") in view of by Takahashi, U.S. Patent No. 5,743,846 (hereinafter, "Takahashi '846").

**(vii) Argument**

Appellant notes that all of the rejections are based upon the erroneous premise that independent claim 1 is obvious in light of a combination of Takahashi

'015 with Takahashi '846. This premise is incorrect for two reasons. First, as further explained below, there is no suggestion or motivation for skilled in the art to modify the Takahashi '015 reference to utilize the center rod lens of Takahashi '846 as suggested by the Examiner. Second, even if this combination were made, one would still not arrive at a lens system having all the features recited in independent claim 1, as the resultant lens system would still not employ lenses that are positioned vertex-to-vertex adjacent each other. For each of the these reasons, the rejections of all of the claims should be reversed.

**There Is No Suggestion To Combine The Disclosures Of The References As Suggested By The Examiner**

Independent claim 1 includes a center rod lens and two outer rod lenses, and requires that “the center rod lens is essentially of the same length as, or longer than, the length of each of the outer rod lenses”. Takahashi '015 does not disclose such an arrangement, and the Examiner acknowledges this. See 1/24/07 Office Action at 4, 8-9. However, the Examiner points to a second reference, Takahashi '846, which discloses certain embodiments that have a center rod lens that is about the same length as two outer rod lenses. The Examiner asserts that it would be obvious to modify the arrangement of Takahashi '015, which uses center rod lenses that are *shorter* than the outer rod lenses, to employ a center rod lens that is *essentially the same length as* the outer lenses, based on the disclosure of Takahashi '846.

In order for a claimed invention to be considered obvious over a combination of references, there must be some suggestion or motivation in the prior art that would cause one skilled in the art—without the Applicant's disclosure in front them—to combine the references and make the relevant modification. *In re Oetiker*, 977 F.2d, 1443, 1447, 24 U.S.P.Q. 2d 1443, 1446 (Fed. Cir. 1992). It is well settled that the mere fact that references *are capable of being* combined or modified does not render a resultant combination or modification obvious *unless the prior art also suggests the desirability of the combination or modification*. *In re Mills*, 916 F.2d 680, 682, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990) (Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so" in order for obviousness to exist).

Here, the Examiner has identified no suggestion for one skilled in the art to make the necessary modification, and no such suggestion exists. Instead, in response to Appellant's observation that there is no suggestion in the prior art to change the lens design described in Takahashi '015, the Examiner states that:

Takahashi '846, which is used as a secondary reference discloses/suggests to one skilled in the art a fact [*sic*] that the length of the center rod lens element can be shorter than or essentially same [*sic*] as the length of the outer rod lens element. To support for that [*sic*] suggestion, Takahashi et al '846 indeed disclose a numerous examples [*sic*] in which some examples show that the length of the center lens is shorter than the length of the outer lens and some examples show that the length of the center lens is shorter than [*sic* – "*the same as*"?] the length of the outer lens. As a result, one skilled in the art will modify the lens system having plural image transmission units provided by Takahashi '015

by making the length of the center lens the same as that of the outer lens as suggested by Takahashi et al '846 to meet a particular design or a particular application.

1/24/07 Office Action at 13.

As a preliminary matter, it appears the Examiner mistakenly used the word “shorter” repeatedly. It appears the Examiner intended to note that the secondary reference (Takahashi '846), in addition to disclosing examples with a shorter center lens (like Takahashi '015), also shows some examples where the length of the center rod lens element can be “essentially the same as” the length of the outer rod lens element.

Making this presumption, the above quote illustrates that the Examiner asserts that the secondary reference (Takahashi '846) shows that a center rod lens “can” be the same length as the outer rod lenses, and on that basis, concludes that one skilled in the art “will” modify the lens system of the primary reference (Takahashi '015). Appellant respectfully submits that the Examiner has not identified any suggestion or motivation in the prior art to modify the center lens taught by Takahashi '015. Instead, the Office Action simply asserts that a secondary reference (Takahashi '846) shows that the length of the center lens element can be equal to the length of the outer rods lenses, and therefore, one will modify the primary reference to make the center rod lens longer. Appellant notes it is well established that this is not a sufficient basis for asserting that a combination and modification of the prior art is obvious. See, e.g., MPEP 2143.01 (“The mere fact

that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.”).

Takahashi '846 simply discloses a lens assembly with a center rod lens that is essentially the same length as two outer rod lenses. However, neither of the references suggests the desirability of using a center rod lens that is essentially the same length as the outer rod lenses in the lens assembly specifically described in Takahashi '015. Without the present application in front of them to use as a roadmap, the prior art does not provide any suggestion to one skilled in the art that it would be desirable to change the lens design of Takahashi '015. Indeed, as Applicant has noted, the secondary reference discloses many lens configurations, including many having a center lens *shorter* than the outer lenses. Therefore, it would not suggest to one skilled in the art that a center lens that is essentially equal to the outer lenses is generally preferable, and thus, that the specific lens assembly described in Takahashi '015 should therefore be changed to use such an arrangement.

Appellant respectfully submits that the Examiner's argument simply picks and chooses different elements from different references, which is improper. As the Court of Appeals for the Federal Circuit has recently reaffirmed and explained:

[I]n making the assessment of differences between the prior art and the claimed subject matter, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of

existing principles or features... The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result--often the essence of invention.

*Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332, 1337, 75

U.S.P.Q.2d 1051, 1054 (Fed. Cir. 2005) (citations omitted) (emphasis added).

There is no suggestion in the prior art, and the Examiner has not identified one, that would cause one skilled in the art to change the design of '015 as suggested by the Examiner.

**Even If The References Are Combined As Suggested By The Examiner, One Would Still Not Arrive At The Invention Recited In Claim 1**

Independent claim 1 includes a center rod lens and two outer rod lenses, and requires that "the rod lenses are vertex-to-vertex adjacent to one another".

Takahashi '015 does not disclose rod lenses that are positioned this way. Instead, the vertices of the center and outer rod lenses are specifically distanced from each other. The center and outer lenses are specifically positioned with distances  $d_2$  and  $d_6$  between them, as illustrated in each of Figures 3-8 and defined in the lens data ( $d_2$ ,  $d_6$ ) for each embodiment described.



Though the Examiner does not explicitly acknowledge that the cited references do not disclose such a feature, it appears that the Examiner does not dispute this. See 1/24/07 Office Action at 11-12. Instead, the Examiner argues that the claim language does not adequately limit the claims to include this feature.

Specifically, the Examiner asserts that the recitation that the rod lenses are “vertex-to-vertex adjacent to one another” does not require that the lenses are in contact with one another. It appears that the Examiner read this claim limitation so broadly as to simply require that the rod lenses are positioned longitudinally in sequence. Appellant respectfully disagrees with the Examiner’s position, for several reasons. First, such an interpretation would render this claim language superfluous, as the claim language would simply require that the rod lenses be positioned as they obviously would be (longitudinally in sequence). Such an interpretation would add nothing to the claim, rendering this limitation meaningless. Appellant submits that this is not the plain meaning of “vertex-to-vertex adjacent”. Appellant submits that this claim limitation, rather than being superfluous language, instead clarifies that the rod lenses are positioned such that the vertex at one end of a rod lens abuts the vertex of an end of the rod lens next to it. Moreover, to the extent that this claim language arguably *would* include any inherent ambiguity, such alleged ambiguity is clearly dispelled at Page 5, lines 3-5 of the specification, which specifically explains

that the positioning of the lenses “vertex-to-vertex adjacent” each other permits the elimination of distancing tubes. *See also* Page 6, lines 5-8; Page 8, lines 10-13

### Conclusion

For all of the foregoing reasons, it is submitted that the claimed invention is patentable over the cited art. Accordingly, it is submitted that the rejection of claims 1, 3, 5-9, 11-14 and 16-17 should be reversed.

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Respectfully submitted,

July 3, 2007

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**Claims Appendix  
to Appeal Brief Under 37 CFR §41.37  
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1. Image transmission system for rigid endoscopes and similar viewing tubes with a center rod lens and two outer rod lenses, which are symmetrical to one another with respect to a center plane of the image transmission system that is perpendicular to the optical axis of the image transmission system, wherein

all lens elements consist in each case of optically homogeneous material,

all optically active surfaces are spherical,

the center rod lens consists of a rod lens main element and lens elements cemented to it, resulting in a biconvex connecting rod lens, and

the outer rod lenses are biconvex, wherein

the rod lenses are vertex-to-vertex adjacent to one another and

the center rod lens is essentially of the same length as, or longer than, the length of each of the outer rod lenses.

3. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element is a biconcave lens and

the lens elements cemented to it are biconvex lenses.

5. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element is a biconvex lens, and

the lens elements cemented to it are meniscus elements.

6. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 5, wherein

the meniscus elements are positive meniscus elements.

7. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 5, wherein

the meniscus elements are negative meniscus elements.

8. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the length of the center rod lens essentially corresponds to the length of each of the outer rod lenses.

9. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element are symmetrical with respect to its center plane that is perpendicular to the optical axis.

11. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the center rod lens includes ends that are symmetrical with respect to a symmetry plane that runs through the center rod lens perpendicular to the optical axis.

12. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the center connecting rod lens is symmetric with respect to a symmetry plane running through the center rod lens perpendicular to the optical axis.

13. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the lens elements cemented to the rod lens main element are symmetrical to one another with respect to a symmetry plane running through the center rod lens perpendicular to the optical axis.

14. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

the rod lens main element of the center rod lens and the lens elements cemented to it configure the center rod lens as a cylinder.

16. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

no distancing tubes are used between the rod lenses.

17. Image transmission system for rigid endoscopes and similar viewing tubes according to claim 1, wherein

each of the outer rod lenses is of one piece.

**Evidence Appendix  
to Appeal Brief Under 37 CFR §41.37  
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No evidence of any kind, including evidence submitted under 37 CFR 1.130, 1.131 or 1.132, has been entered by the Examiner and relied upon by Appellant in the appeal.



**Related Proceedings Appendix  
to Appeal Brief Under 37 CFR §41.37  
Serial No. 10/764,908**

There are no related Appeals or Interferences. As such, there are no decisions rendered by a court or the Board in any such Appeals or Interferences.